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PREVENTATIVE MAINTENANCE PLAN

WESTFIELD ELECTRIC COMPANY
104 North Main Street
P. O. Box 309
Westfield, WI 53964-0309
(608)296-2149

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FORMS

I. Preventative Maintenance Plan

The PSC 113.0607 rule reads:
Appropriate inspection and maintenance: system reliability.

(1) PREVENTATIVE MAINTENANCE PLAN. Each utility or other person subject to this chapter, including persons who own electric generating facilities in this state who provide service to utilities with contracts of five years or more, shall develop and have in place its own preventative maintenance plan. This section is applicable to electric generating facilities as set forth at s. 194.491(5)(a)(1), Stats. Each plan shall include, among other things, appropriate inspection, maintenance and replacement cycles where applicable for overhead and underground distribution plant, transmission, generation* and substation facilities.

(2) CONTENTS OF THE PLAN. (a) *Performance standard.* The Preventative Maintenance Plan shall be designed to ensure high quality, safe and reliable service, considering: cost, geography, weather, applicable codes, national electric industry practices, sound engineering judgment and experience.

* *PSC staff interpretation is that generation applies to individual generators equal to or greater than 50 AIW.*

II. Inspection Schedule and Methods:

The purpose of this plan is to maintain or improve the electrical system reliability with the objective of increased loyalty and satisfaction from our constituents. The goals are to meet and exceed the schedules established in this plan.

Exception reporting (inspected equipment not in good condition) will be the method of documentation on all inspection forms.

The scope of this plan is traditional and uses proven maintenance techniques. Unique operating and maintenance philosophies have not been considered. Also, manufacturer defects will be dealt with as they are communicated to this utility.

The inspection of Distribution facilities will be by individual substation circuits on a 5-year cycle such that the entire system will be inspected every 5 years. Inspector instructions for inspecting all facilities and forms are included with the plan.

METHODS: Four criteria groups will be used to complete the inspection of all facilities.

1. RFI - Radio Frequency Interference, a byproduct of loose hardware and connections, is checked using an AM radio receiver.

2. SI - structural integrity of all supporting hardware including poles, crossarms, insulators, structures, bases, foundations, buildings, etc.

3. Clearance - refers to proper spacing of conductors from objects, trees and other utility cables.

4. EC - equipment condition on non-structural components such as circuit breakers, transformers, regulators, reclosers, relays, batteries, capacitors, etc.

III. **Condition Rating Criteria:**

This criterion, as listed below, establishes the condition of a facility and also determines the repair schedule to correct deficiencies.

1) Good condition but aging

2) Non-critical maintenance required - normally repair within 12 months

3) Priority maintenance required - normally repair within 90 days

4) Urgent maintenance required - report immediately to the utility and repair normally within one week

IV. **Corrective Action Schedule**

The rating criteria as listed above determine the corrective action schedule.

V. **Record Keeping**

All inspection forms and records will be retained for a minimum of 10 years. The inspection form contains all of the required critical information i.e. inspection dates, condition rating, schedule for repair and date of repair completion.

VI. **Reporting Requirements**

A report and summary of this plan's progress will be submitted every two years with the first report due to the Commission by February 1, 2003. The report will consist of a letter documenting the percent of inspections achieved compared to the schedule and a description maintenance achieved within the scheduled time allowance.

VII. DISTRIBUTION - OVERHEAD INSPECTION GUIDE

STRUCTURE

Pole Condition
Pole Leaning
Crossarm Condition
Insulators, Deadend, Pin
Excess Fill or Soil Removal
Pole Steps
Grounds Intact
Ground Molding
Down Guys
Guy Markers
Guy Bonding/Insulator
Signage - Location Number, Warning Sign
Customer Equipment
Conductor
Tie Wires
U Guard/Conduit Condition

EQUIPMENT

- Transformers
  - Oil Leaks
  - Bushing Condition
  - Grounding/Bonding
- Capacitors
  - Fuses Blown
  - Bushing Condition
  - Oil Leaks
  - Tank Bulged
  - Switches, Oil, Vacuum
  - Control Conduit/Wiring
  - Grounding/Bonding
- Cutouts
  - Insulator Condition
  - Fuse Size Tag

VII. DISTRIBUTION - OVERHEAD INSPECTION GUIDE (con't)

EQUIPMENT (CON'T)

- Arrestor
  - Insulator Condition
  - Connections
  - Ground Lead Disconnection
- Cable Terminators
  - Insulator Condition
  - Grounding/Bonding

CLEARANCES

- Ground Line
- Buildings, Bridges, Swimming Pool, Etc.
- Communications Facilities
- Fuel Tanks
- Other Electric Utilities
- Transmission Lines
- Over Streets, Roads, Alleys, Highways
- Tree Trimming
  - Clearance From Line
  - Vines on Poles
  - Danger Trees

RFI CHECK

- OH system with AM radio as each circuit is inspected

OVERHEAD DISTRIBUTION INSPECTION FORM

Date________ **Inspected by**____________ **Sub**_________ **Ckt** _________

MAP AREA	STRUCTURE													EQUIPMENT						CLEARANCE					COMMENTS		
LOCATION	Pole Condition/Leaning	Crossarm Condition	Insulators, DE, Pin	Soil Conditions	Pole Steps	Grounds Intact, Molding	Down Guys and Markers	Guy Bond, Insulator	Signs, Loc#, Warning	Customer Equipment	Conductor and Ties	U'Guard/Conduit Cond	RFI Check	Transformer	Switches	Cutouts	Arresters	Terminators	Street Light	Tree Trimming	Ground Line Clearances	Building Clearances	Streets, Roads, Alleys	Communication Clearance	Rating Criteria ---------------------- 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenace Required	Date Item Corrected	Corrected By

VIII. DISTRIBUTION - UNDERGROUND INSPECTION GUIDE

STRUCTURAL (Exterior & Interior) Transformer, Primary Pedestal, Secondary Pedestal, Switchgear.

- Enclosure Condition
- Level/Leaning
- Security
- Grade/Accessibility (Shrubs, Customer Facilities, Fill/Excavation)
- Numbering
- Voids/Gaps
- Signage - Location Number, Warning Sign
- Pad/Vault Condition

EQUIPMENT

- Transformers
  - Oil Leaks
  - Bushing Condition
  - Grounding/Bonding
  - Elbows
  - Arrestors
  - Feed-Through
  - Cable Condition
  - Secondary Connections
- Primary Pedestals
  - Elbows
  - Junction Condition
  - Grounding/Bonding
- Secondary Pedestals
  - Secondary Connections
- Switches - URD Switchgear
  - Insulator Condition
  - Operating Handle Security
  - Linkage
  - Grounding/Bonding
  - Switch Number/Fuse Size & Number

UNDERGROUND DISTRIBUTION INSPECTION FORM Date_____Inspected by_____ Sub_____ Circuit_____

MAP AREA	STRUCTURE								EQUIPMENT				RFI Scan		COMMENTS		
EQUIPMENT LOCATION	Enclosure Condition	Level / Leaning	Security	Grade / Accessibility	Numbering	Voids / Gaps	Signage	Pad / Vault Condition	**Transformers**, Leaks, Bushings, Grounding,Bonds,Elbows, Arrestors, Cable cond, Connections	**Primary Pedestals**, Elbows, Grounding, Bonds,Junction cond.	**Secondary Pedestals**, Connections	**Switches**, Signage, Insulators, Security, Linkage, Ground, Bonds	***Main Three Phase Feeders***, *Risers &* Switchgear	**Priority URD Transformers**, Bushings and Tank heating	Rating Criteria --- 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenace Required	Date Item Corrected	Corrected By